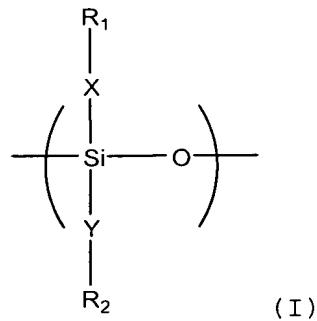


CLAIMS

1. The use of at least one polymer
5 comprising at least one siloxane repeating unit
corresponding to the general formula (I) below:



in which:

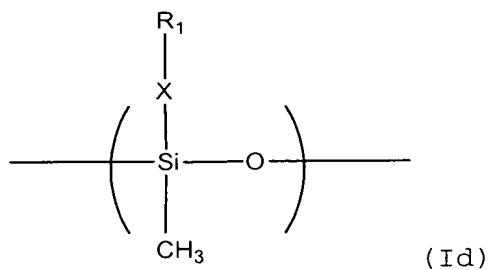
10 X and Y, which may be identical or different, represent a single bond or a saturated or unsaturated, linear hydrocarbon group containing from 1 to 50 carbon atoms;

15 R₁ and R₂, which may be identical or different, represent a hydrogen atom, a CN group, a group C(Z)₃, CH(Z)₂ or CH₂Z with Z representing a halogen atom; an NH₂ group, a group NHR₃ or NR₃R₄ with R₃ and R₄ representing, independently of each other, a halogen atom, a methyl group or a linear or branched, saturated
20 or unsaturated hydrocarbon chain containing from 2 to 20 carbon atoms and possibly one or more heteroatoms and/or one or more chemical functions comprising at least one heteroatom; on condition, however, that at least one from among R₁ and R₂ is not a hydrogen atom;

or of a composite comprising this polymer and one or more electrically conductive fillers, as sensitive material in a sensor for detecting one or more nitro compounds.

5

2. The use as claimed in claim 1, in which the siloxane repeating unit corresponds to the particular formula (Id) below:



10

in which X is a saturated or unsaturated linear hydrocarbon group containing from 1 to 50 carbon atoms, while R_1 has the same meaning as above.

15

3. The use as claimed in claim 2, in which, in the particular formula (Id), X represents an alkylene chain containing from 2 to 10 carbon atoms.

20

4. The use as claimed in claim 1, in which the siloxane repeating unit is trifluoropropylmethyldisiloxane or cyanopropylmethyldisiloxane.

25

5. The use as claimed in claim 1, in which the polymer is chosen from

polytrifluoropropylmethylsiloxanes and polycyanopropyl-methylsiloxanes.

6. The use as claimed in claim 5, in which
5 the polymer has an average molecular weight ranging
from 50 to 100 000.

7. The use as claimed in claim 1, in which
the conductive filler(s) of the composite is(are)
10 chosen from carbon black particles and metal and metal
oxide powders.

8. The use as claimed in claim 1, in which
the polymer or the composite is used in the form of a
15 thin film covering one or both faces of a substrate.

9. The use as claimed in claim 8, in which
the thin film is from 10 angstroms to 100 microns
thick.

20
10. The use as claimed in claim 8, in which
the thin film is prepared via a technique chosen from
spraying, spin coating, drop coating, dip coating, the
Langmuir-Blodgett technique, electroplating and *in situ*
25 polymerization of a precursor monomer of the polymer.

11. The use as claimed in claim 1, in which
the detection of the nitro compound(s) by the chemical
sensor is performed by measuring a variation in the
30 mass of the polymer or in the electrical conductivity
of the composite.

12. The use as claimed in claim 1, in which the sensor is a gravimetric sensor.

5 13. The use as claimed in claim 12, in which the sensor is a quartz microbalance sensor.

14. The use as claimed in claim 1, in which the sensor is a resistive sensor.

10 15. The use as claimed in claim 1, in which the sensor is a microsensor that comprises one or more gravimetric sensors and/or one or more resistive sensors, at least one of these sensors comprising a 15 polymer or a composite as defined above.

16. The use as claimed in claim 1, in which the nitro compound(s) to be detected is(are) chosen from nitroaromatic compounds, nitroamines, nitrosamines 20 and nitric esters.

17. The use as claimed in claim 1, in which the nitro compound(s) to be detected is(are) in solid, liquid or gaseous form.

25 18. The use as claimed in claim 1, in which the nitro compound(s) to be detected is(are) chosen from nitrobenzene, dinitrobenzene, trinitrobenzene, nitrotoluene, dinitrotoluene, trinitrotoluene, 30 dinitrofluorobenzene, dinitrotrifluoromethoxybenzene, aminodinitrotoluene, dinitrotrifluoromethylbenzene,

chlorodinitrotrifluoromethylbenzene, hexanitrostilbene, trinitrophenylmethylnitramine and trinitrophenol.

19. The use as claimed in claim 1, for detecting
5 explosives.